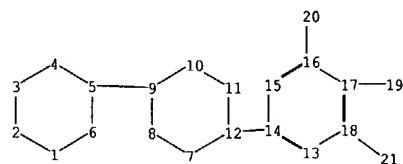
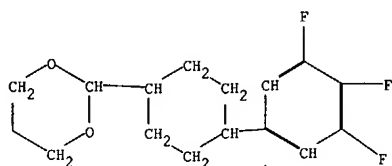


## WEST Search History

DATE: Wednesday, June 30, 2004

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<input type="checkbox"/>	L15	?-HEB near F	10
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<input type="checkbox"/>	L8	4-GHB\$F\$F\$F	0
<input type="checkbox"/>	L7	3-GHB\$F\$F\$F	0
<input type="checkbox"/>	L6	\$GHB\$F\$F\$F	0
<input type="checkbox"/>	L5	GHB\$F\$F\$F	0
<input type="checkbox"/>	L4	HEB\$F\$F or HEB\$F\$F\$F	3
<input type="checkbox"/>	L3	L2 and l1	0
<input type="checkbox"/>	L2	dcu\$F	1
<input type="checkbox"/>	L1	czu\$F or czg\$F	34

END OF SEARCH HISTORY



chain nodes :

19 20 21

ring nodes :

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

chain bonds :

5-9 12-14 16-20 17-19 18-21

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12 13-14 13-18 14-15  
15-16 16-17 17-18

exact/norm bonds :

1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12

exact bonds :

5-9 12-14 16-20 17-19 18-21

normalized bonds :

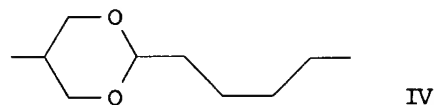
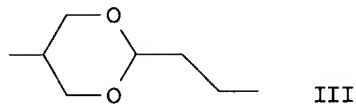
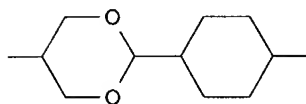
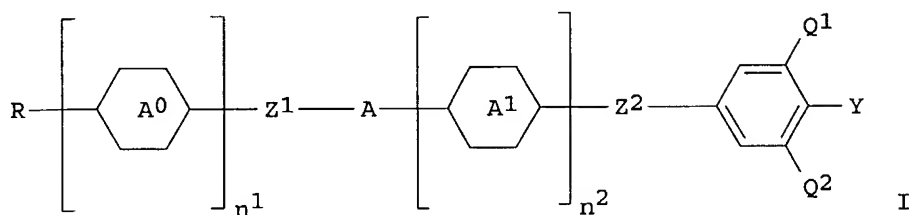
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Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:Atom  
12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom 18:Atom 19:CLASS 20:CLASS  
21:CLASS

AN 1998:268503 CAPLUS  
 DN 129:10735  
 ED Entered STN: 11 May 1998  
 TI Liquid crystal composition containing dioxane derivatives for liquid  
 crystal element  
 IN Haseba, Yasuhiro; Kondou, Tomoyuki; Matsui, Shuichi; Miyazawa, Kazutoshi;  
 Takeuchi, Hiroyuki; Hisatsune, Yasusuke; Takeshita, Fusayuki; Nakagawa,  
 Etsuo  
 PA Chisso Corp., Japan; Haseba, Yasuhiro; Kondou, Tomoyuki; Matsui, Shuichi;  
 Miyazawa, Kazutoshi; Takeuchi, Hiroyuki; Hisatsune, Yasusuke; Takeshita,  
 Fusayuki; Nakagawa, Etsuo  
 SO PCT Int. Appl., 156 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA Japanese  
 IC ICM C07D319-06  
 ICS C07D239-26; C09K019-34; C09K019-42; G02F001-13  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 Section cross-reference(s): 28, 75  
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9817664	A1	19980430	WO 1997-JP2257	19970630
W: AL, AU, BA, BB, BG, BR, CA, CN, CU, CZ, EE, GE, GH, HU, JP, KR, LC, LK, LR, LT, LV, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, TR, TT, UA, US, UZ, VN, YU, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
AU 9732768	A1	19980515	AU 1997-32768	19970630
EP 881221	A1	19981202	EP 1997-928518	19970630
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
CN 1211978	A	19990324	CN 1997-192489	19970630
US 6235355	B1	20010522	US 1998-101999	19980721
PRAI JP 1996-297984	A	19961022		
WO 1997-JP2257	W	19970630		
OS MARPAT 129:10735				
GI				



AB Liquid-crystal compds. useful as the liquid-crystal material for low-voltage driven TFT-type liquid-crystal display devices exhibited a high voltage retention and a remarkably high  $\Delta\epsilon$  value. The compds. are elec. and chemical stable and excellent in compatibility with existing liquid-crystal compds. The above compds. are particular dioxane derivs. of general formula I (A = II, III, IV; R = C1-20 alkyl, H; n1, n2 = 0-2; (n1 + n2)  $\leq$  2; Q1,2 = H, F, Cl; A0, A1 = 1,4-cyclohexylene, etc.; Y, Z1, Z2 = disclosed in claims) and the above compns. contain at least one of the derivs.

ST liq crystal display compn element; dioxane deriv liq crystal display compn

IT Liquid crystal displays

(liquid crystal composition containing dioxane derivs. for liquid crystal element)

IT Liquid crystals

RL: DEV (Device component use); FMU (Formation, unclassified); FORM

(Formation, nonpreparative); USES (Uses)

(liquid crystal composition containing dioxane derivs. for liquid crystal element)

IT	7465-91-0	22692-80-4	38444-13-2	38690-77-6	40817-08-1	41122-71-8
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	57202-29-6	58743-75-2	59855-05-9	61203-99-4	61204-01-1	
	61204-03-3	63221-88-5	64835-59-2	67589-39-3	67589-41-7	
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RL: DEV (Device component use); FMU (Formation, unclassified); FORM (Formation, nonpreparative); USES (Uses)

(liquid crystal composition containing dioxane derivs. for liquid crystal element)

IT 97344-78-0P 160910-27-0P 186261-16-5P **207462-53-1P**  
207462-64-4P 207462-94-0P 207463-00-1P 207463-05-6P 207463-14-7P

RL: DEV (Device component use); FMU (Formation, unclassified); SPN (Synthetic preparation); FORM (Formation, nonpreparative); PREP (Preparation); USES (Uses)

(liquid crystal composition containing dioxane derivs. for liquid crystal element)

IT 64-18-6, Formic acid, reactions 455-19-6, 4-Trifluoromethylbenzaldehyde  
2612-28-4 4746-97-8, 1,4-Dioxaspiro[4.5]decan-8-one 6297-22-9, Methyl  
4-oxocyclohexanecarboxylate 25462-23-1, 2-Pentyl-1,3-propanediol  
32085-88-4, 3,5-Difluorobenzaldehyde 60811-18-9, 3-Fluoro-4-  
chlorobromobenzene 69891-92-5 99627-05-1, 3,4,5-Trifluorophenol  
105529-58-6, 3-Fluoro-4-trifluoromethoxybromobenzene 138526-69-9,  
3,4,5-Trifluorobromobenzene

RL: RCT (Reactant); RACT (Reactant or reagent)

(liquid crystal composition containing dioxane derivs. for liquid crystal element)

IT 54274-80-5P 82989-27-3P 156265-95-1P 160148-05-0P,  
4-(3,4,5-Trifluorophenyl)cyclohexanone 160148-06-1P 160910-28-1P  
163978-51-6P 166947-09-7P, 3-(4-Trifluoromethylphenyl)propanal  
176765-67-6P 207462-72-4P 207462-77-9P 207462-85-9P 207463-02-3P  
207463-04-5P 207463-08-9P 207463-11-4P 207463-13-6P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(liquid crystal composition containing dioxane derivs. for liquid crystal element)

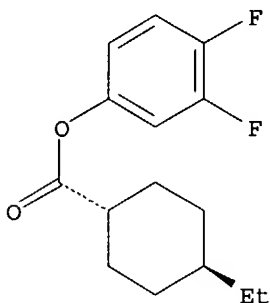
RE.CNT 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Chisso Corp; EP 193191 A2 1986 CAPLUS
- (2) Chisso Corp; JP 61-197563 A 1986 CAPLUS
- (3) F Hoffmann Roche Ag F; JP 05-186376 A 1993 CAPLUS
- (4) F Hoffmann Roche Ag F; JP 07-2832 A 1995 CAPLUS
- (5) F Hoffmann Roche Ag F; EP 433836 A1 1995 CAPLUS
- (6) F Hoffmann Roche Ag F; US 5322638 A 1995 CAPLUS
- (7) Merck Patent GmbH; JP 58-159488 A 1983 CAPLUS
- (8) Merck Patent GmbH; EP 87679 A1 1983 CAPLUS
- (9) Merck Patent GmbH; EP 207975 A1 1987 CAPLUS

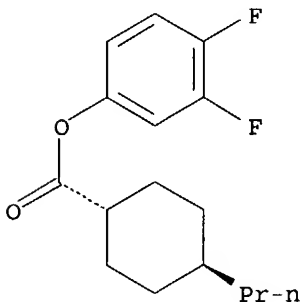
(10) Merck Patent Gmbh; US 4818428 A 1987 CAPLUS  
 (11) Merck Patent Gmbh; JP 62-501509 A 1987  
 (12) Merck Patent Gmbh; JP 04-501272 A 1992  
 (13) Merck Patent Gmbh; JP 04-503678 A 1992  
 (14) Merck Patent Gmbh; EP 438574 A1 1992 CAPLUS  
 (15) Merck Patent Gmbh; EP 457878 A1 1992 CAPLUS  
 (16) Merck Patent Gmbh; US 5250220 A 1992 CAPLUS  
 (17) Merck Patent Gmbh; WO 912780 A 1992  
 (18) Merck Patent Gmbh; WO 919026 A 1992  
 (19) Merck Patent Gmbh; JP 09-12569 A 1997 CAPLUS  
 (20) Merck Patent Gmbh; DE 19522529 A 1997 CAPLUS  
 (21) Veb Werk Fur Fernseeelektronik Im Veb Kombinat Mikroelektronik; GB 2164645  
 A 1986 CAPLUS  
 (22) Veb Werk Fur Fernseeelektronik Im Veb Kombinat Mikroelektronik; JP  
 61-76480 A 1986 CAPLUS  
 IT 94737-79-8 94737-80-1 94737-82-3  
 132123-44-5 207463-16-9  
 RL: DEV (Device component use); FMU (Formation, unclassified); FORM  
 (Formation, nonpreparative); USES (Uses)  
 (liquid crystal composition containing dioxane derivs. for liquid crystal  
 element)  
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 CN Cyclohexanecarboxylic acid, 4-ethyl-, 3,4-difluorophenyl ester, trans-  
 (9CI) (CA INDEX NAME)

Relative stereochemistry.



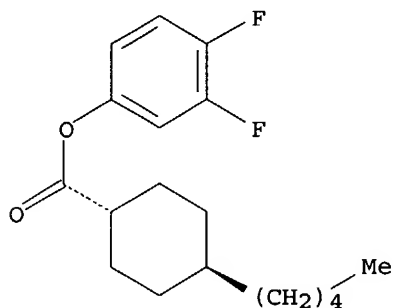
RN 94737-80-1 CAPLUS  
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 (9CI) (CA INDEX NAME)

Relative stereochemistry.



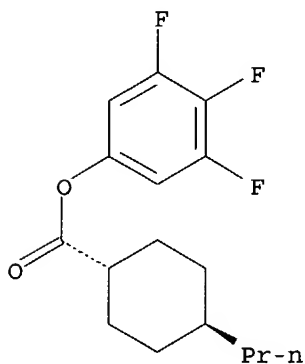
RN 94737-82-3 CAPLUS  
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 (9CI) (CA INDEX NAME)

Relative stereochemistry.



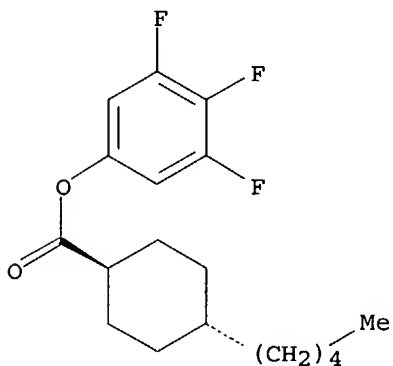
RN 132123-44-5 CAPLUS  
 CN Cyclohexanecarboxylic acid, 4-propyl-, 3,4,5-trifluorophenyl ester, trans-  
 (9CI) (CA INDEX NAME)

Relative stereochemistry.



RN 207463-16-9 CAPLUS  
 CN Cyclohexanecarboxylic acid, 4-pentyl-, 3,4,5-trifluorophenyl ester, trans-  
 (9CI) (CA INDEX NAME)

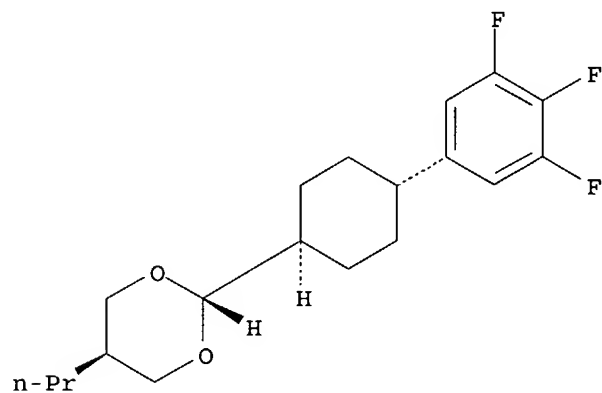
Relative stereochemistry.



IT 207462-53-1P  
 RL: DEV (Device component use); FMU (Formation, unclassified); SPN  
 (Synthetic preparation); FORM (Formation, nonpreparative); PREP  
 (Preparation); USES (Uses)  
 (liquid crystal composition containing dioxane derivs. for liquid crystal  
 element)  
 RN 207462-53-1 CAPLUS  
 CN 1,3-Dioxane, 5-propyl-2-[trans-4-(3,4,5-trifluorophenyl)cyclohexyl]-,

trans- (9CI) (CA INDEX NAME)

Relative stereochemistry.

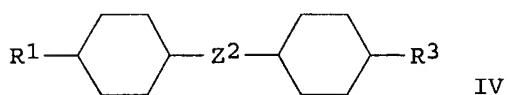
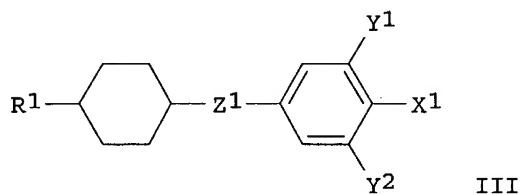
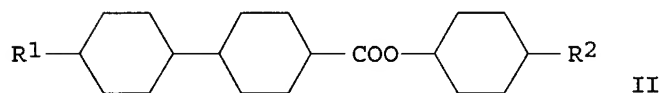
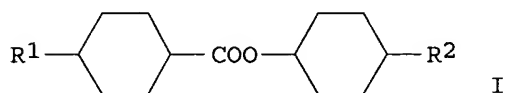




AN 2001:581512 CAPLUS  
 DN 135:160219  
 ED Entered STN: 10 Aug 2001  
 TI Liquid crystal composition and liquid crystal display device  
 IN Yanai, Motoki; Kubo, Yasuhiro; Nakagawa, Etsuo  
 PA Chisso Corp., Japan; Chisso Petrochemical Corp.  
 SO Eur. Pat. Appl., 39 pp.  
 CODEN: EPXXDW  
 DT Patent  
 LA English  
 IC ICM C09K019-30  
 ICS C09K019-42  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 Section cross-reference(s): 75

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1122292	A2	20010808	EP 2001-102169	20010202
	EP 1122292	A3	20011107		
	EP 1122292	B1	20030618		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2001288470	A2	20011016	JP 2000-160243	20000530
	US 2002066887	A1	20020606	US 2001-773536	20010202
	US 6572938	B2	20030603		
PRAI	JP 2000-27959	A	20000204		
	JP 2000-160243	A	20000530		
OS	MARPAT 135:160219				
GI					



AB The present invention is to provide a liquid crystal composition which has

particularly a high upper limit temperature of a nematic phase, a low lower limit temperature of the nematic phase and a small birefringence while satisfying general characteristics required to the liquid crystal composition for

an AM-LCD. Liquid crystal compns. are disclosed which comprising a component (1) comprising at least one compound selected from the group of compds. represented by I or II (R1,2 = alkyl, alkoxy, C1-10 alkoxymethyl or C2-10 alkenyl), a component (2) comprising at least one compound selected from the group of compds. such as III (Z1 = single bond or -CH2CH2-; X1 = F, Cl, OCHF2 or OCF3; Y1-2 = H or F) and a component (3) comprising at least one compound selected from the group of compds. such as IV (R3 = alkyl, alkoxy, C1-10 alkoxymethyl, C2-10 alkenyl; R1 = alkyl, alkoxy, C1-10 alkoxymethyl or C2-10 alkenyl; Z2 = single bond, -CH2CH2- or -CH=CH-).

ST nematic liq crystal compn cyclohexyl phenyl deriv; active matrix liq crystal display device

IT Liquid crystal displays  
Liquid crystals

(Liquid crystal composition and liquid crystal display device)

IT	73255-59-1	73255-62-6	76802-59-0	79284-92-7	79646-68-7
	79709-84-5	79912-81-5	80944-44-1	81701-13-5	82832-27-7
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	93393-41-0	<b>94737-80-1</b>	94840-77-4	96624-52-1	97398-80-6
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RL: DEV (Device component use); USES (Uses)

(Liquid crystal composition and liquid crystal display device)

IT **94737-80-1** **207462-53-1** **207463-16-9**

**352566-05-3**

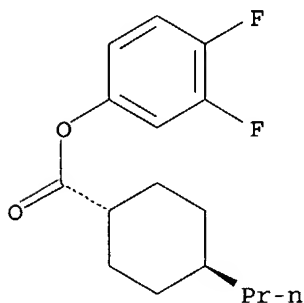
RL: DEV (Device component use); USES (Uses)

(Liquid crystal composition and liquid crystal display device)

RN 94737-80-1 CAPLUS

CN Cyclohexanecarboxylic acid, 4-propyl-, 3,4-difluorophenyl ester, trans-(9CI) (CA INDEX NAME)

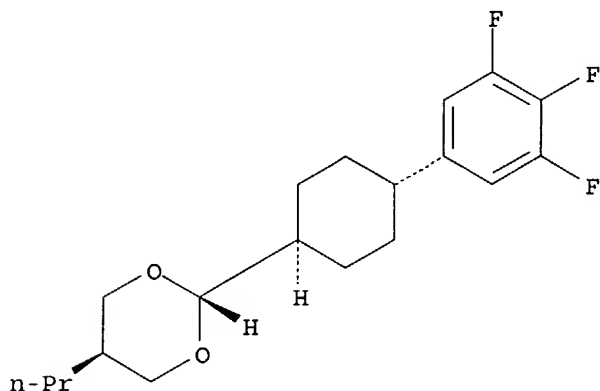
Relative stereochemistry.



RN 207462-53-1 CAPLUS

CN 1,3-Dioxane, 5-propyl-2-[trans-4-(3,4,5-trifluorophenyl)cyclohexyl]-, trans- (9CI) (CA INDEX NAME)

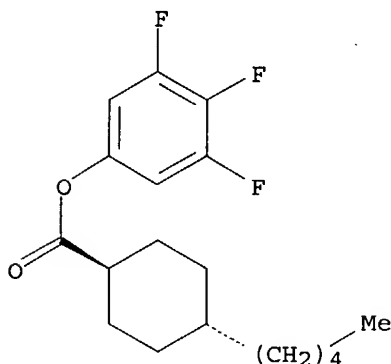
Relative stereochemistry.



RN 207463-16-9 CAPLUS

CN Cyclohexanecarboxylic acid, 4-pentyl-, 3,4,5-trifluorophenyl ester, trans- (9CI) (CA INDEX NAME)

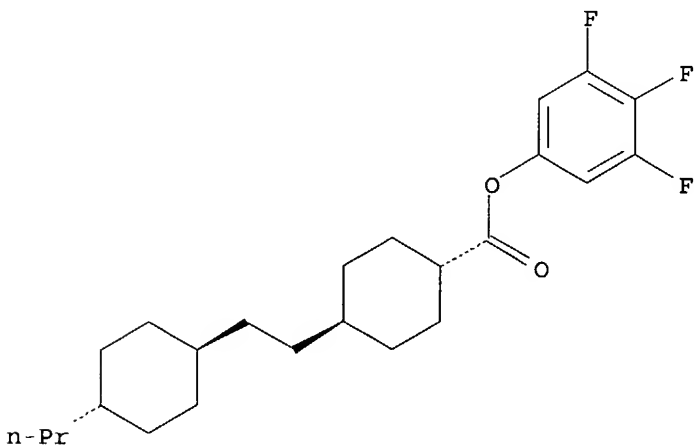
Relative stereochemistry.



RN 352566-05-3 CAPLUS

CN Cyclohexanecarboxylic acid, 4-[2-(trans-4-propylcyclohexyl)ethyl]-, 3,4,5-trifluorophenyl ester, trans- (9CI) (CA INDEX NAME)

Relative stereochemistry.



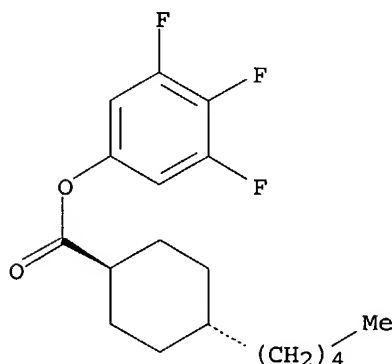
AN 2002:400386 CAPLUS  
 DN 136:409119  
 ED Entered STN: 29 May 2002  
 TI Liquid crystal compositions with reduced refractive index anisotropy and their displays with wide range of operation temperature  
 IN Kubo, Yasuhiro; Terashima, Kenji  
 PA Chisso Corp., Japan; Chisso Petrochemical Corporation  
 SO Jpn. Kokai Tokkyo Koho, 24 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM C09K019-42  
 ICS C09K019-30; C09K019-34; G02F001-13  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 Section cross-reference(s): 75

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002155280	A2	20020528	JP 2000-353261	20001120
	US 2002119261	A1	20020829	US 2001-985812	20011106
	US 6641872	B2	20031104		
PRAI	JP 2000-353261	A	20001120		
OS	MARPAT 136:409119				
AB	The compns. comprise (A) R1AZ1AZ2BR2 and (B) ≥1 compds. selected from R3AZ3D, R3ACF2OD, R4AZ4AZ5D, R4AZ5ACO2D, R4AZ5BZ3D, R4BZ5AZ3D, R4AZ4ACF2OD (A = p-C6H10; B = 1,3-dioxane-2,5-diyl; D = 3-Y1-4-X1-5-Y2-phenyl; R1-4 = C1-10-alkyl, alkoxy, alkoxymethyl, C2-10-alkenyl; Z1, Z2, Z5 = single bond, C2H4; Z3 = single bond, C2H4, CO2; Z4 = single bond, C2H4, CH:CH; X1 = F, Cl, CF3, OCF2H, OCF3; Y1, Y2 = H, F).				
ST	liq crystal cyclohexylene dioxanediyl reflection LCD; active matrix reflection liq crystal display				
IT	Liquid crystals (liquid crystal compns. with reduced refractive index anisotropy for active-matrix reflection LCD with wide range of operation temperature)				
IT	Liquid crystal displays (reflection; liquid crystal compns. with reduced refractive index anisotropy for active-matrix reflection LCD with wide range of operation temperature)				
IT	67589-39-3D, mixture containing		79912-83-7D, mixture containing		
	79912-85-9D, mixture containing		80944-44-1D, mixture containing	81701-13-5D, mixture containing	
	82832-27-7D, mixture containing		82832-57-3D, mixture containing		
	84540-32-9D, mixture containing		84656-75-7D, mixture containing	86778-48-5D, mixture containing	
	88416-69-7D, mixture containing		88416-70-0D, mixture containing		
	88416-73-3D, mixture containing		88878-50-6D, mixture containing	96624-52-1D, mixture containing	
	110881-30-6D, mixture containing		118164-50-4D, mixture containing		
	118164-51-5D, mixture containing	131790-57-3D, mixture containing	131819-23-3D, mixture containing		
	131819-24-4D, mixture containing	131819-25-5D, mixture containing			
	132123-45-6D, mixture containing	137529-56-7D, mixture containing	137784-79-3D, mixture containing		
	137810-19-6D, mixture containing	139136-72-4D, mixture containing			
	139420-31-8D, mixture containing	142223-50-5D, mixture containing	144583-01-7D, mixture containing		
	148462-51-5D, mixture containing	148462-52-6D, mixture containing			
	175859-25-3D, mixture containing	178689-87-7D, mixture containing	181943-56-6D, mixture containing		

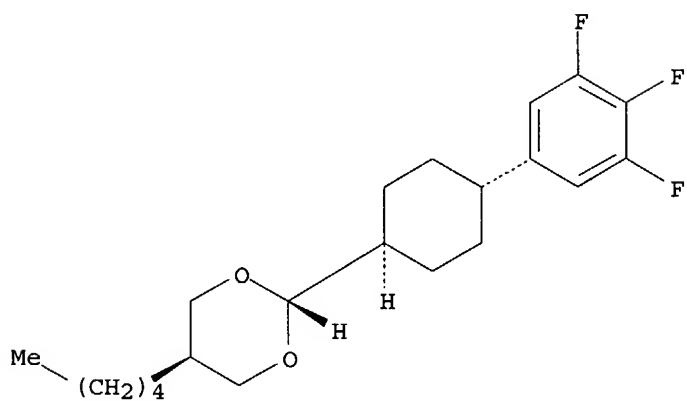
181943-57-7D, mixture containing 181943-58-8D, mixture containing  
 192221-89-9D,  
 mixture containing 192221-94-6D, mixture containing 197247-35-1D, mixture  
 containing  
 207463-16-9D, mixture containing 208338-50-5D, mixture containing  
 208338-51-6D, mixture containing 208338-52-7D, mixture containing  
 208338-57-2D,  
 mixture containing 208338-60-7D, mixture containing 208338-88-9D, mixture  
 containing  
 208531-64-0D, mixture containing 208531-73-1D, mixture containing  
 208531-75-3D,  
 mixture containing 213591-60-7D, mixture containing 213591-64-1D, mixture  
 containing 268550-43-2D, mixture containing 346710-91-6D, mixture containing  
 352566-00-8D, mixture containing 431065-49-5D, mixture containing  
 431065-50-8D,  
 mixture containing 431065-51-9D, mixture containing 431065-52-0D, mixture  
 containing  
 431065-53-1D, mixture containing 431065-54-2D, mixture containing  
 431065-55-3D,  
 mixture containing 431065-56-4D, mixture containing 431065-57-5D, mixture  
 containing  
 431065-58-6D, mixture containing 431065-59-7D, mixture containing  
 431065-60-0D,  
 mixture containing 431065-61-1D, mixture containing 431065-62-2D, mixture  
 containing  
 431065-63-3D, mixture containing 431065-64-4D, mixture containing  
 431065-65-5D,  
 mixture containing 431065-66-6D, mixture containing 431065-67-7D, mixture  
 containing  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (liquid crystal comps. with reduced refractive index anisotropy for  
 active-matrix reflection LCD with wide range of operation temperature)  
 IT 207463-16-9D, mixture containing 213591-60-7D, mixture containing  
 268550-43-2D, mixture containing  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (liquid crystal comps. with reduced refractive index anisotropy for  
 active-matrix reflection LCD with wide range of operation temperature)  
 RN 207463-16-9 CAPLUS  
 CN Cyclohexanecarboxylic acid, 4-pentyl-, 3,4,5-trifluorophenyl ester, trans-  
 (9CI) (CA INDEX NAME)

Relative stereochemistry.



RN 213591-60-7 CAPLUS  
 CN 1,3-Dioxane, 5-pentyl-2-[trans-4-(3,4,5-trifluorophenyl)cyclohexyl]-,  
 trans- (9CI) (CA INDEX NAME)

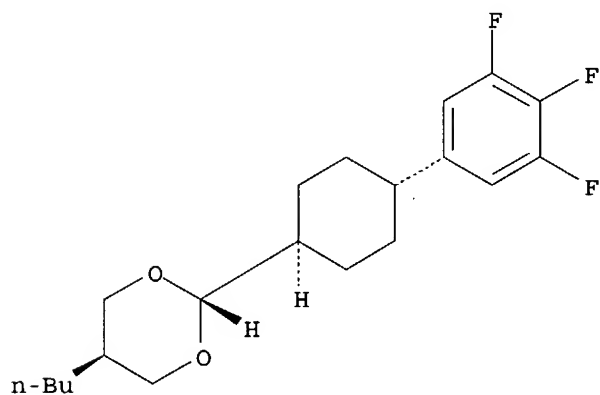
Relative stereochemistry.



RN 268550-43-2 CAPLUS

CN 1,3-Dioxane, 5-butyl-2-[trans-4-(3,4,5-trifluorophenyl)cyclohexyl]-,  
trans- (9CI) (CA INDEX NAME)

Relative stereochemistry.



AN 2002:808067 CAPLUS  
 DN 137:331157  
 ED Entered STN: 24 Oct 2002  
 TI Liquid crystal composition for UV shutter  
 IN Yano, Shinichi; Kato, Takashi; Miyazawa, Kazutoshi  
 PA Chisso Corp., Japan; Chisso Petrochemical Corporation  
 SO Jpn. Kokai Tokkyo Koho, 31 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM C09K019-42  
 ICS C09K019-30; C09K019-34; G02F001-13  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 Section cross-reference(s): 73

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002309255	A2	20021023	JP 2002-23640	20020131
PRAI	JP 2001-33382	A	20010209		
OS	MARPAT 137:331157				

AB The invention relates to a liquid crystal composition, suited for use in making a switchable UV shutter that may be integrated into a printer head, a photolithog. apparatus, a fluorescence display, etc., comprising  $\geq 2$  liquid crystal compds. having 2 .apprx. 4 cyclic groups and optionally an optically active compound, wherein the cyclic group contained in the liquid crystal compound is para-divalent.

ST liq crystal compn UV shutter

IT Liquid crystals  
 Optical imaging devices  
 Shutters

(liquid crystal composition for UV shutter)

IT	7465-91-0	22692-80-4	56131-48-7	56131-49-8	59855-05-9	61203-99-4
	67589-39-3	67589-41-7	67589-47-3	67589-52-0	67589-53-1	
	67589-72-4	70567-18-9	70602-95-8	74240-64-5	74240-65-6	
	79319-27-0	79912-85-9	79945-42-9	80944-44-1	81701-13-5	
	81936-32-5	82406-82-4	82406-83-5	82492-42-0	82832-27-7	
	82832-57-3	84655-98-1	84656-75-7	84656-77-9	85312-59-0	
	86579-52-4	86776-50-3	86776-51-4	86776-52-5	86778-48-5	
	86786-89-2	88038-92-0	88416-69-7	88878-50-6	92263-41-7	
	93743-04-5	96184-42-8	96624-41-8	96624-52-1	97398-80-6	
	98321-58-5	100980-86-7	101478-47-1	102714-95-4	107215-74-7	
	107392-35-8	110881-30-6	112026-68-3	114291-10-0	116090-24-5	
	116090-25-6	116090-26-7	116090-30-3	116090-36-9	116090-37-0	
	117923-19-0	117923-21-4	117943-37-0	118164-50-4	118164-51-5	
	120893-64-3	123560-48-5	123787-68-8	124728-81-0	124729-02-8	
	129738-34-7	129738-42-7	131315-33-8	131819-23-3	131819-24-4	
	131899-35-9	132123-39-8	132123-43-4	132123-45-6	132123-46-7	
	133937-72-1	134412-17-2	134412-18-3	137529-40-9	137529-41-0	
	137529-56-7	137529-63-6	139136-72-4	139420-31-8	142400-92-8	
	146781-29-5	146781-31-9	148462-51-5	148462-52-6	153227-45-3	
	153227-50-0	153227-53-3	153429-48-2	155041-85-3	173306-39-3	
	174350-05-1	174350-07-3	174350-08-4	175859-23-1	175859-24-2	
	175859-25-3	175859-28-6	178689-87-7	181943-57-7	181943-58-8	
	183145-19-9	183388-45-6	184161-94-2	186320-72-9	196870-32-3	
	197012-69-4	197247-35-1	208528-35-2	213591-60-7		
	213591-64-1	261728-96-5	264615-90-9	268550-24-9	303186-20-1	
	473743-35-0	473743-36-1	473743-37-2	473743-38-3		
	473774-82-2	473774-84-4				

RL: DEV (Device component use); USES (Uses)

(liquid crystal composition for UV shutter)

IT 213591-60-7 473743-35-0

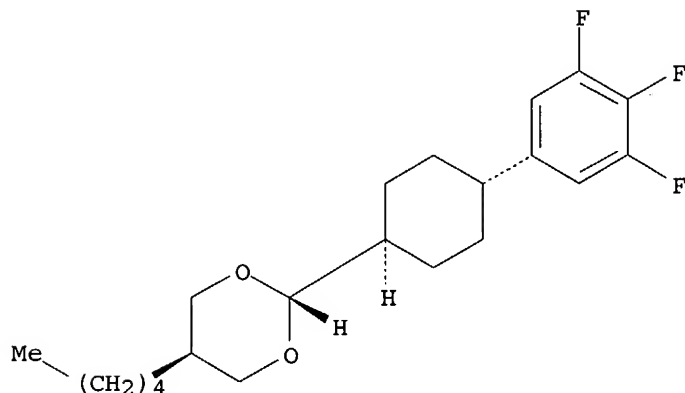
RL: DEV (Device component use); USES (Uses)

(liquid crystal composition for UV shutter)

RN 213591-60-7 CAPLUS

CN 1,3-Dioxane, 5-pentyl-2-[trans-4-(3,4,5-trifluorophenyl)cyclohexyl]-,  
trans- (9CI) (CA INDEX NAME)

Relative stereochemistry.



RN 473743-35-0 CAPLUS

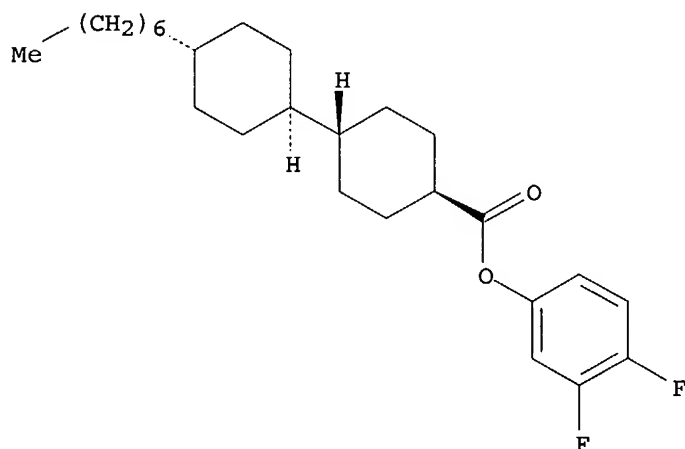
CN [1,1'-Bicyclohexyl]-4-carboxylic acid, 4'-heptyl-, 3,4-difluorophenyl  
ester, [trans(trans)]-, mixt. with 3,4-difluorophenyl trans-4'-  
heptylcyclohexanecarboxylate, 3,4-difluorophenyl [trans(trans)]-4'-  
pentyl[1,1'-bicyclohexyl]-4-carboxylate and 3,4-difluorophenyl  
trans-4-pentylcyclohexanecarboxylate (9CI) (CA INDEX NAME)

CM 1

CRN 97398-76-0

CMF C26 H38 F2 O2

Relative stereochemistry.



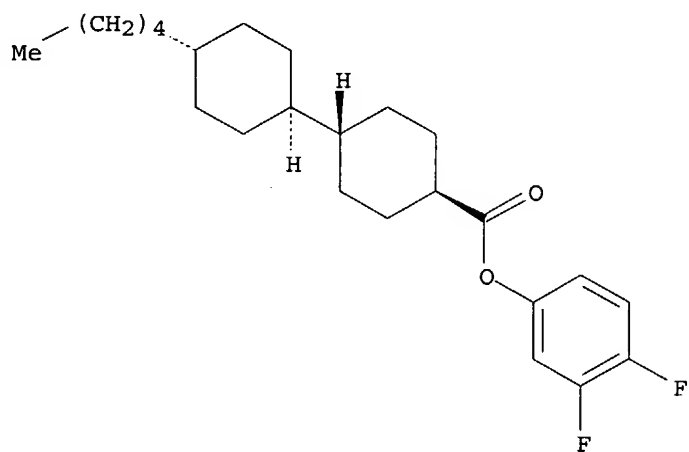
CM 2

CRN 97398-75-9

CMF C24 H34 F2 O2

Relative stereochemistry.



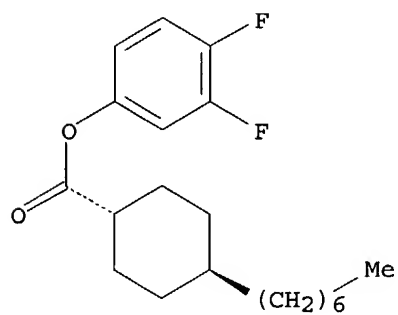


CM 3

CRN 94737-84-5

CMF C20 H28 F2 O2

Relative stereochemistry.

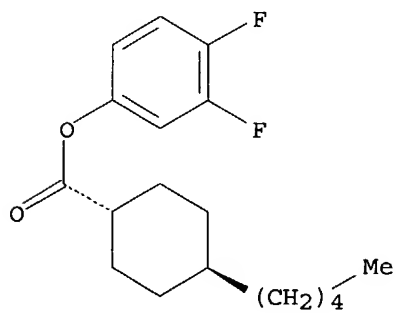


CM 4

CRN 94737-82-3

CMF C18 H24 F2 O2

Relative stereochemistry.



AN 2004:391943 CAPLUS  
 DN 140:415045  
 ED Entered STN: 14 May 2004  
 TI Liquid crystal composition and liquid crystal display element  
 IN Saito, Masayuki  
 PA Japan  
 SO U.S. Pat. Appl. Publ., 14 pp.  
 CODEN: USXXCO  
 DT Patent  
 LA English  
 IC ICM C09K019-34  
 ICS C09K019-30; C09K019-20  
 NCL 252299610; 252299630; 252299670  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004089844	A1	20040513	US 2003-697879	20031031
	JP 2004149691	A2	20040527	JP 2002-317432	20021031
PRAI	JP 2002-317432	A	20021031		
GI					

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB A liquid crystal composition for liquid crystal display comprises as a first component, at least one compound selected from a group of compds. represented by Formula I (R1 = alkyl; X1 = H, F); as a second component, at least one compound selected from a group of compds. represented by Formula II; as a third component, at least one compound selected from a group of compds. represented by Formula III (R2 = alkyl, alkenyl; A1 = 1,4-phenylene in which any hydrogen may be replaced by fluorine; X1 = H, F); as a fourth component, at least one compound selected from a group of compds. represented by Formula IV (R2 = alkyl, alkenyl; R3 = alkyl, alkoxy, CF3; A2 = 1,4-cyclohexylene, 1,4-phenylene); and as a fifth component, at least one compound selected from a group of compds. represented by Formulas V (R2 = alkyl, alkenyl; R4 = alkyl, alkoxy; A2 = 1,4-cyclohexylene, 1,4-phenylene; Z1 = single bond; COO; A2 = 1,4-cyclohexylene, 1,4-phenylene;) and VI (R1 = alkyl; R5 = alkyl, alkoxyethyl; A1 = 1,4-phenylene in which any hydrogen may be replaced by fluorine; A2 = 1,4-cyclohexylene, 1,4-phenylene; Z1 = single bond; COO; X1 = H, F).

ST liq crystal compn display element

IT Liquid crystal displays

Liquid crystals

(liquid crystal composition for liquid crystal display element)

IT 80944-44-1 80955-71-1 81701-13-5 82832-57-3 82985-79-3  
 82985-80-6 83242-83-5 84655-98-1 84656-75-7 84656-77-9  
 85312-59-0 88038-92-0 88878-50-6 94737-82-3 96624-43-0  
 96624-52-1 97398-80-6 102714-92-1 106349-49-9 110881-30-6  
 115978-59-1 118164-50-4 129738-34-7 131790-57-3 131819-23-3  
 132123-45-6 133261-31-1 134412-18-3 137489-25-9 139215-80-8  
 142400-92-8 153429-48-2 155041-85-3 173837-35-9 181369-18-6  
 181943-55-5 183272-43-7 196699-20-4 196699-38-4 207462-53-1  
 207463-16-9 213591-60-7 268550-43-2  
 352566-00-8 688358-85-2

RL: TEM (Technical or engineered material use); USES (Uses)

(liquid crystal composition for liquid crystal display element)

IT 94737-82-3 207462-53-1 207463-16-9  
 213591-60-7 268550-43-2 688358-85-2

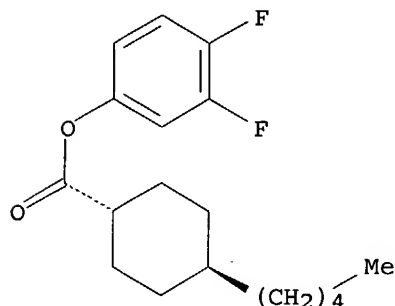
RL: TEM (Technical or engineered material use); USES (Uses)

(liquid crystal composition for liquid crystal display element)

RN 94737-82-3 CAPLUS

CN Cyclohexanecarboxylic acid, 4-pentyl-, 3,4-difluorophenyl ester, trans-  
(9CI) (CA INDEX NAME)

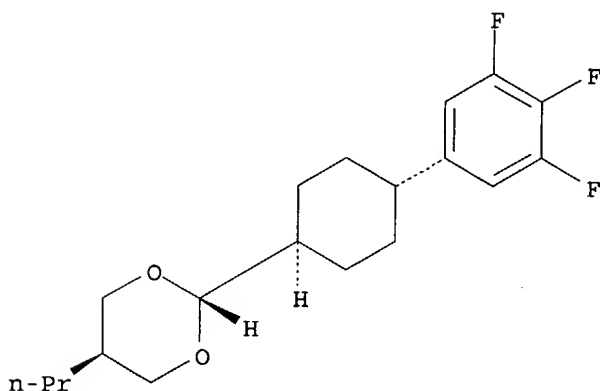
Relative stereochemistry.



RN 207462-53-1 CAPLUS

CN 1,3-Dioxane, 5-propyl-2-[trans-4-(3,4,5-trifluorophenyl)cyclohexyl]-, trans- (9CI) (CA INDEX NAME)

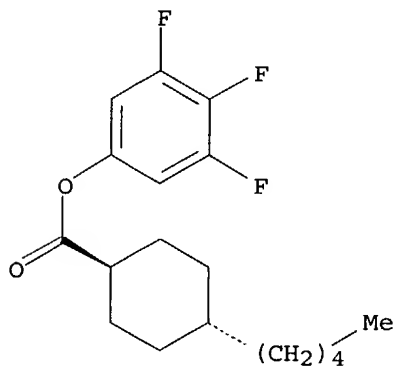
Relative stereochemistry.



RN 207463-16-9 CAPLUS

CN Cyclohexanecarboxylic acid, 4-pentyl-, 3,4,5-trifluorophenyl ester, trans-  
(9CI) (CA INDEX NAME)

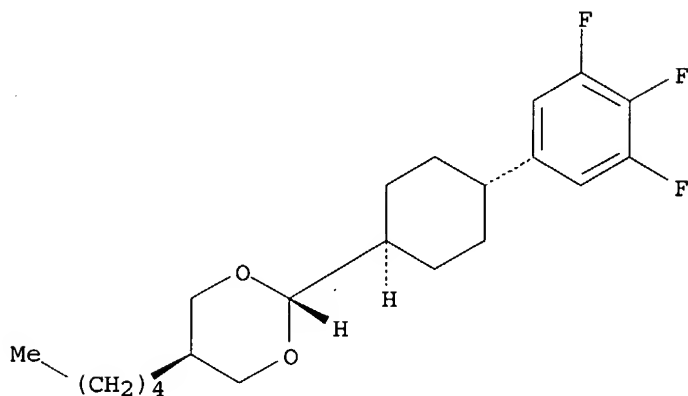
Relative stereochemistry.



RN 213591-60-7 CAPLUS

CN 1,3-Dioxane, 5-pentyl-2-[trans-4-(3,4,5-trifluorophenyl)cyclohexyl]-,  
trans- (9CI) (CA INDEX NAME)

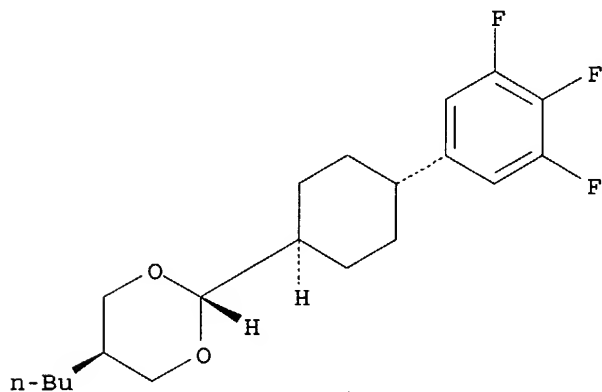
Relative stereochemistry.



RN 268550-43-2 CAPLUS

CN 1,3-Dioxane, 5-butyl-2-[trans-4-(3,4,5-trifluorophenyl)cyclohexyl]-,  
trans- (9CI) (CA INDEX NAME)

Relative stereochemistry.



RN 688358-85-2 CAPLUS

CN Cyclohexanecarboxylic acid, 4-(methoxymethyl)-, 3,4,5-trifluorophenyl  
ester, trans- (9CI) (CA INDEX NAME)

Relative stereochemistry.

